

REMARKS

Claims 1-10 were pending in the application. By this amendment, claims 1 and 8 are being amended to improve their form, and new claims 11-23 are being added, to advance the prosecution of the application. No new matter is involved.

On page 2 of the Office Action, claims 1-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,677,749 of Tsubota et al. in view of U.S. Patent 5,942,066 of Sunaga et al. Tsubota et al. is said to disclose the steps of the claims except for the step of heating and pressing substrates for which Sunaga et al. is relied on. This rejection is respectfully traversed.

As amended, claim 1 recites disposing a thermally conductive buffer plate “comprising a heat-shrinkable material which is preheated”. The preheating occurs before the buffer plate is used for a heating and curing process of the seal material of the display panel. This is described at line 28 of page 12 through line 3 of page 13 of the specification.

In the present invention, by preheating a buffer plate containing a material which shrinks by heat before the buffer plate is used in the actual panel manufacturing step, generation of positional deviation between the display area of the panel and the opening of the buffer plate caused by shrinkage of the buffer plate during the heating and curing process of the thermosetting seal material can be reliably prevented. Although Tsubota et al. and Sunaga et al. each disclose a buffer plate, such references fail to disclose or even suggest the “preheating” of a buffer plate containing a heat-shrinkable material and then using the buffer plate in the curing step of the seal material.

Therefore, claim 1 as amended is submitted to clearly distinguish patentably over the art. Claims 2-7 depend, directly or indirectly, from claim 1 and contain all of the limitations thereof, so that such claims are also submitted to clearly distinguish patentably over the art.

New claim 11 which depends from claim 1 further defines such claim in terms of "the preheating of said buffer plate is performed under conditions substantially identical to the conditions during the heating and curing process applied to said thermosetting seal material". New claim 12, which is similar to claim 6, depends from and further defines claim 1 in terms of "no spacers for defining the gap between the substrates in said display area are provided in said display panel body". Therefore, new claims 11 and 12 patentably distinguish over the art.

Claim 8 is being amended to add thereto the language "said buffer plate further comprises a rigid film having a high rigidity and buffer films provided to sandwich said rigid film and having a lower rigidity than the rigidity of said rigid film". As so amended, claim 8 clarifies that, in addition to the function of the buffer plate to conduct heat to the thermosetting seal material, the buffer plate comprises a rigid film having a high rigidity and buffer films provided to sandwich the rigid film and having a lower rigidity than the high rigid film. This is described, for example, at line 24 of page 14 through line 17 of page 15 of the specification, and is shown in Fig. 7. By providing such a rigid film within the buffer plate, the buffer plate according to the present invention can be easily handled, for example, when the opening and the display area are aligned. Such structure also has the advantage that deformation of the buffer plate when the buffer plate is to be mounted on a panel or the like can be reduced.

Although Tsubota et al. discloses that the buffer plate comprises a plurality of materials (glass fiber and fluoride resin), such reference fails to disclose or even suggest that the buffer plate comprises "a rigid film". Moreover, there is no description or suggestion of the advantages that the precision of alignment between the opening of the buffer plate and the display area can be easily improved. Furthermore, there is no recognition of the necessity for such a structure in Tsubota et al. Sunaga et al. fails to disclose a specific structure of the buffer plate. In Japanese Patent Laid-Open Publication No. 2000-187226, submitted in an enclosed

any resin could
be poured on
and rigid

Information Disclosure Statement (IDS), there is only a description that the buffer sheet (2) is "paper". There is no description that the buffer sheet has a layered structure, and, moreover, it is clear that there is no recognition providing a particular rigidity to the buffer sheet.

In the present invention, because the thermally conducting buffer plate has a layered structure of at least three layers, that is, films having the buffering functionality and a rigid film, the degree of freedom for the type of "rigid film" which can be employed is high. For example, as described in the newly-added claims 13 and 14, each of which depends from claim 8, a metal may be employed. By employing a metal having a high thermal conductivity, a buffer plate can be obtained which is superior in ease of handling (ease of alignment) or the like while heat can be efficiently supplied to the thermosetting seal between panels in a short time. In Tsubota et al., because an ultraviolet curing seal material is employed, no advantage would be realized by introduction of thermal conductivity to the buffer plate. The other cited references fail to disclose a layered structure. Therefore, a buffer plate according to the present invention having a layered structure with a "rigid film" cannot properly be regarded as obvious from the citations.

Therefore, claim 8 as amended is submitted to clearly distinguish patentably over the art, as well as claims 9 and 10 which depend from and contain all of the limitations thereof. Similar comments apply to new claims 13 and 14, which depend from claim 8, as well as new claim 15 which further defines claim 8 in terms of the buffer film "formed of polytetrafluoroethylene".

New independent claim 16 recites all of the limitations of a manufacturing method of a liquid crystal display panel of original claim 1, and contains the additional limitation that a buffer plate as defined in amended claim 8 is used. That is, a thermally conductive buffer plate having a layered structure (with a rigid film) is used. None of the cited references disclose the buffer plate and a manufacturing method using such a buffer plate, and therefore, claim 16 is submitted to clearly distinguish patentably over the art.

New claims 17, 18 and 19, which are similar to claims 13, 14 and 15 respectively, depend from and further define claim 16. Thus, in the case of claim 17, such claim further defines claim 16 in terms of "wherein said rigid film is formed of the metal". Claim 18 depends from and further defines claim 16 in terms of "said rigid film is formed of a metal" and "said buffer film is formed of polytetrafluoroethylene". Claim 19 depends from and further defines claim 16 in terms of "said buffer film is formed of polytetrafluoroethylene". Therefore, claims 17-19 are submitted to clearly distinguish patentably over the art. New claims 20-23 depend from and further define claim 16 in terms similar to claims 3-6 respectively. Accordingly, such claims are also submitted to clearly distinguish patentably over the art.

Enclosed is an Information Disclosure Statement (IDS). Such Statement refers to and encloses copies of an Office Action dated January 28, 2003 which issued in connection with the corresponding Korean Application, together with an English translation thereof, and the two references cited in the Office Action together with English translations thereof.

In conclusion, claims 1-23 are submitted to clearly distinguish patentably over the art. Therefore, reconsideration and allowance are respectfully requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles telephone number (213) 337-6846 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

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